PATENT

Atty Docket No.: 100110202-1
App. Ser. No.: 10/062,443

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the claim amendments and following remarks.

Claims 1, 7, 12, and 20 have been amended and Claims 2, 6, 15, 21, and 26 have been canceled without prejudice or disclaimer of the subject matter contained therein. Currently, therefore Claims 1, 3-6, 7-14, 18-20, 22-27, 28, and 29 are pending in the present application of which Claims 1, 12, and 20 are independent.

No new matter has been introduced by way of the claim amendments; entry thereof is therefore respectfully requested.

Claim Rejection Under 35 U.S.C. §102

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

> Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

Claims 1-5, 8-10, 12-15, 18, 20-23, 25, 26, 28, and 29 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by the disclosure contained in U.S. Patent No. 5,509,468 to Lopez. This rejection is respectfully traversed because the present invention as set forth in independent Claims 1, 12, and 20 and the claims that depend therefrom are patentably distinguishable over the disclosure contained in Lopez.

Claim 1 has been amended to include, *inter alia*, a heat exchanger adapted to transfer heat from a cooling fluid to a chilled medium and a controllable valve configured to modulate the supply of the chilled medium to thereby vary the transfer of heat from the cooling fluid to the chilled medium.

Claim 12 has been amended to include, *inter alia*, means for cooling a cooling fluid including a chilled medium and means for modulating the supply of the chilled medium to vary the transfer of heat from the cooling fluid to the chilled medium.

Claim 20 has been amended to include, *inter alia*, that a cooling fluid is circulated through a heat exchanger and that the heat exchanger operation is modulated to vary a supply of a medium configured to absorb heat from the cooling fluid to thereby vary a level of heat exchange between the cooling fluid and the heat exchanger.

Generally speaking, Claims 1, 12, and 20 have been amended in various respects to include the features of canceled Claims 2 and 6.

On page 8 of the Official Action, the Examiner has indicated that Lopez fails to disclose the features of Claim 6. More particularly, the Examiner has indicated that Lopez fails to disclose that the coolant fluid in Lopez is water. It should be noted, however, that Claim 6 contained features other than using water as a cooling fluid. It should also be noted that the terms "cooling fluid", as recited in the claims of the present invention, pertain to the

fluid that is circulated through a cold plate and the term "medium" pertains to a fluid used to cool the "cooling fluid" in a heat exchanger. It appears that this distinction has been overlooked by the Examiner.

As such, Claim 6 did not, as alleged in the Official Action, recite that water was used as the cooling fluid. Instead, Claim 6 recited that chilled water was used as the medium. In fact, Lopez fails to disclose that a separate medium is used to cool the coolant fluid at all. Instead, Lopez discloses, in column 5, lines 32-42, that a "[f]luid compressor 80 and heat exchanger 84 are operative to compress the coolant fluid applied thereto and to transfer heat of the coolant fluid, respectively, according to conventional techniques." In other words, the coolant fluid used in Lopez comprises a refrigerant (such as hydrofluorocarbon 134b) that undergoes a conventional vapor-compression cycle in becoming heated and cooled. As such, the coolant fluid in Lopez in most likelihood could not comprise water as alleged in the Official Action.

Therefore, Lopez fails at least to disclose that a chilled medium is supplied through a heat exchanger to exchange heat with a cooling fluid that flows through a cold plate as claimed in Claims 1, 12, and 20 of the present invention. In addition, Lopez fails to disclose that the supply of the chilled medium is modulated or otherwise varied to vary the supply of the chilled medium and to thereby vary the transfer of heat from the cooling fluid to the chilled medium as claimed in Claims 1, 12, and 20 of the present invention.

Accordingly, Lopez fails to disclose each and every element claimed in Claims 1, 12 and 20 and thus cannot anticipate these claims. The Examiner is thus respectfully requested to withdraw the rejection of Claims 1, 12, and 20 as allegedly being anticipated by the disclosure contained in Lopez, and to allow these claims.

Claims 3-5, 8-10, 13, 14, 18, 22, 23, 25, 28, and 29 are also allowable over the disclosure contained in Lopez at least by virtue of their respective dependencies upon allowable Claims 1, 12, and 20. Claim 3-5, 8-10, 13, 14, 18, 22, 23, 25, 28, and 29 are also allowable over Lopez for additional reasons.

For instance, with respect to Claim 25, Lopez fails to disclose that a level of heat generation by at least one computer component is anticipated. In addition, Lopez fails to disclose that the amount of cooling fluid supplied into the cold plate is varied based upon the anticipated heat generation level. Instead, the Official Action apparently misinterpreted the features claimed in Claim 25 because the Official Action fails to address that heat generation is anticipated.

The Official Action alleges that the features of Claim 25 are disclosed in Figure 6 (temperature sensor) and in column 9, line 60-column 10, line 14 of Lopez. This allegation is clearly improper because those sections of Lopez do not disclose the features of Claim 25. Instead, the temperature sensor 300 illustrated in Figure 6 is used to detect current temperature. In addition, column 9, line 60-column 10, line 14 discusses operations of a flow rate controller 296 and that the temperature sensor 300 is connected to the flow rate controller 296. However, that cited section does not discuss, nor could that section reasonably be construed as discussing, anticipation of heat generation and the control of cooling fluid supply based upon the anticipated heat generation as claimed in Claim 25 of the present invention.

As such, the rejection of Claim 25 is clearly improper and the Examiner is respectfully requested to withdraw the rejection.

PATENT

Atty Docket No.: 100110202-1
App. Ser. No.: 10/062,443

Claim Rejection Under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

Claims 6 and 7

Claims 6 and 7 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lopez in view of U.S. Patent Number 5,144,531 to Go et al. This rejection is respectfully traversed because Lopez and Go et al., considered singly or in combination, fails to disclose the invention as set forth in independent Claim 1 and the claims that depend therefrom.

As discussed above, the features of Claim 6 have been incorporated into independent Claim 1, in a slightly modified form. In addition, Claim 7 has been amended to depend upon Claim 1. As such, the following discussion of the rejection of Claims 6 and 7 will be based upon the features now claimed in Claim 1.

Initially, Lopez fails to disclose that heat from the coolant fluid supplied through the plate members 52 exchanges heat with a chilled medium as claimed in Claim 1 of the present invention. Instead, Lopez discloses that the coolant fluid itself is cooled through operation of a fluid compressor 80 and a heat exchanger 84 operable "to compress the coolant fluid...and transfer the heat of the coolant fluid, respectively". Column 5, lines 34-36.

The Official Action has apparently misinterpreted the features of Claim 1 because the Official Action has asserted that Claim 6 is obvious in view of the disclosure contained in Go et al. More particularly, the Official Action argues that it would have been obvious to use water as the coolant fluid in Lopez based upon a disclosure in Go et al. that water is used as a coolant fluid. This logic is flawed for at least the following reasons.

First, the coolant fluid in Lopez is disclosed as being compressed and is thus, in most likelihood, a refrigerant that undergoes a vapor-compression cycle. As such, the coolant fluid in Lopez probably could not be water because the boiling point of water is typically too high for its use in vapor-compression refrigeration cycles. Thus, contrary to the assertions made in the Official Action, it would not have been obvious to replace the coolant fluid disclosed in Lopez with water. In fact, Lopez discloses that the coolant fluid could be hydrofluorocarbon 134b, which is a refrigerant. Column 4, lines 21-22.

Second, even assuming for the sake of argument that the coolant fluid in Lopez could somehow be modified to comprise water, the proposed modification would still fail to yield all of the features claimed in Claim 1. For instance, the proposed modification would still fail to disclose that heat is transferred from the coolant fluid to another medium in the heat exchanger. In addition, the proposed modification would still fail to disclose that the supply

of medium may be modulated by a controllable valve to thereby vary the transfer of heat from the cooling fluid to the medium as claimed in Claim 1 of the present invention.

For at least the foregoing reasons, it is respectfully submitted that Lopez and Go et al., considered singly or in combination, fail to disclose all of the features claimed in Claim 1. The Official Action has therefore failed establish that Claim 1 is *prima facie* obvious in view of these documents. Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 6 and 7 and to allow these claims.

Claims 11, 19, 24, and 27

The Official Action sets forth a rejection of Claims 11, 19, 24, and 27 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lopez in view of U.S. Patent No. 6,220,955 to Posa. This rejection is respectfully traversed because Lopez and Posa, considered singly or in combination, fails to disclose the invention as set forth in independent Claims 1, 12 and 20, and thus Claims 11, 19, 24, and 27.

Lopez fails to disclose or render obvious Claims 1, 12, and 20 as described herein above. In addition, the Official Action does not and cannot reasonably assert that the disclosure contained in Posa makes up for the deficiencies in Lopez described above. As such, even assuming for the sake of argument that one of ordinary skill in the art were motivated to combine the disclosures of Lopez and Posa as suggested in the Official Action, the proposed combination would still fail to yield the present invention as claimed in Claims 1, 12 and 20 and thus, Claims 11, 19, 24, and 27.

Accordingly, the Official Action has failed to establish a *prima facie* case of obviousness of Claims 11, 19, 24, and 27 based upon the cited documents. The Examiner is

PATENT

Atty Docket No.: 100110202-1
App. Ser. No.: 10/062,443

therefore respectfully requested to withdraw the rejection of Claims 11, 19, 24, and 27 and to allow these claims.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Dated: September 30, 2005

By _____
Timothy B. Kang
Registration No.: 46,423

MANNAVA & KANG, P.C.
8221 Old Courthouse Road
Suite 104
Vienna, VA 22182
(703) 652-3817
(703) 880-5270 (facsimile)